March 5, 2007

MEMORANDUM

SUBJECT: Science Review in Support of the Registration of Z112-010, Containing 4.25% (S)-Methoprene [Isopropyl (2E,4E,7S)-11-methoxy-3,7,11-trimethyl-2,4-dodecadienoate]) As Its Active Ingredient.

Decision Number: 368777
DP Number: 334867
EPA File Symbol Number: 63823-LA
Chemical Class: Biochemical
PC Code: 105402
Active Ingredient Tolerance Exemptions: 40 CFR 180.1033
MRID Numbers: 46996301 through 46996312

FROM: Angela L. Gonzales, Biologist /s/
Biochemical Pesticides Branch
Biopesticides & Pollution Prevention Division (7511P)

TO: Chris Pfeifer, Regulatory Action Leader
Biochemical Pesticides Branch
Biopesticides & Pollution Prevention Division (7511P)

ACTION REQUESTED

In response to the request for additional information discussed in a memorandum from A.L. Gonzales to C. Pfeifer dated October 24, 2006 and relayed in a letter from BPPD to the registrant dated November 21, 2006, revised Confidential Statement of Formulas (CSF) dated November 06, 2006, a revised label, additional product chemistry data in MRID 46996301, additional product performance data in MRIDs 46996302 through 46996311, additional data regarding non-target toxicity in MRID 46996312, and responses to the requests for additional information in a cover letter have been submitted.

THE FOLLOWING CONTAINS CONFIDENTIAL BUSINESS INFORMATION

RECOMMENDATIONS AND CONCLUSIONS

1. The product chemistry submission is ACCEPTABLE, pending submission and review of requested data.

MRID 46996301- ACCEPTABLE

1a. Pesticide Registration (PR) Notice 94-8 is applicable to this product regarding the water soluble pouch (WSP) as packaging provided that the components of the WSP are approved inert ingredients and are exempt from the requirement from a tolerance when the product has food-uses. The registrant must provide clarification regarding the WSP. It is unclear if the three items listed on the CSF are components of the WSP or if they represent different sources of the WSP.

1b. Chemical Abstract Service (CAS) numbers must be provided on the CSF for the component(s) of the WSP.

1b. Storage stability and corrosion characteristics data must be submitted upon completion.

2. The product performance <u>submission</u> is UNACCEPTABLE, but upgradeable pending resolution of deficiencies listed below.

MRID 46996302-No Decision
MRID 46996303-No Decision
MRID 46996304-No Decision
MRID 46996305-UNACCEPTABLE
MRID 46996306-UNACCEPTABLE
MRID 46996307-UNACCEPTABLE
MRID 46996308-UNACCEPTABLE
MRID 46996309-No Decision
MRID 46996310-No Decision
MRID 46996311-No Decision

2a. Data were not submitted to support the statement on the label, "Use higher rates when water is deep (>/= 2 feet)…", and are required should the registrant wish to leave the statement on the label. The registrant may either remove the statement, submit data to support the claim, or revise the statement such that it is obvious that to the applicator that the product is not efficacious in water depths greater than two feet. The current statement is misleading in that it indicates effectiveness in water depths greater than this depth. Submitted efficacy data support label claims in water depth of up to two feet only.

2b. The registrant indicated in the cover letter that the EP is a "me-too" of Zoecon RF-330 Altosid Pellets (EPA Reg. No. 2724-448). Efficacy studies were submitted from literature with respect to Altosid® formulations. The name and in some cases, concentration of the test substance are not the same in each study. If the registrant is requesting to bridge these studies to their formulation, their product must be identical or significantly similar (identity and concentration of active and inert ingredients) to the test substance utilized in the referenced

studies. Because the test substance in some studies (discussed below) differs in name and concentration of the active ingredient from the product for which bridging is requested, it cannot be determined if the EP is substantially similar or identical to the product tested in the submitted studies.

3a1. Based on the registrant's response to the above, the acceptability of the submitted efficacy studies (MRID 46996302 through 46996511) will be determined. These studies are in reference to requests for product performance data to support label claims for control of different species of mosquitoes, and pre-flood (pre-hatch) applications.

3a2. Should it be determined that the studies mentioned above are unacceptable to fulfill efficacy data requirements, efficacy data are required as discussed in the November 21, 2006 letter to the registrant.

3a3. Efficacy studies were submitted to support claims for control of *Aedes* mosquito species. These data are not required because previously submitted data were considered adequate to support label claims against these species.

2c. The study submitted in MRID 46996307 is adequate for bridging purposes, but is unacceptable due to deficiencies within the study and lack quantitative data.

3. An assessment on non-target effects from the active ingredient to aquatic species through use of the EP cannot be completed at this time.

MRID 46996312-No Decision

3a. The registrant indicated in the cover letter that the EP is a "me-too" of Zoecon RF-330 Altosid Pellets (EPA Reg. No. 2724-448). In order to bridge the estimated environmental concentration (EEC) data submitted for that product (MRID 46996312), the pending EP must be identical or significantly similar (identity and concentration of active and inert ingredients) to the test substance utilized in the referenced study. It is unclear based on the information submitted, if the EP is substantially similar or identical to the test substance from the study.

3a1. Based on the registrant's response to the above, the acceptability of the submitted EEC study will be determined.

3a2. Should it be determined that the study mentioned above is unacceptable to fulfill this requirement, EEC data are required as discussed in detail in the November 21, 2006 letter to the registrant.

Note to RAL:

1. For future submissions, submitted data from literature to support data requirements should be summarized by the registrant.

2. In future submissions, physical and chemical property data should be addressed/discussed in the product chemistry submission, not solely in the data matrix.

STUDY SUMMARIES

Product Chemistry (MRID 46996301 and cover letter)

Product chemistry deficiencies were addressed in MRID 46996301 and in the registrant's cover letter to the Agency. Pesticide Registration (PR) Notice 94-8 is applicable to this product regarding the water soluble pouch (WSP) as packaging provided that the components of the WSP are approved inert ingredients and are exempt from the requirement from a tolerance when the product has food-uses. The components are cleared inert ingredients and are cleared for food-use when applied to growing crops only. The same percentages of active and inert ingredients apply to the product when packaged in the WSP. Four revised (according to Agency requests outlined in the November 21, 2006 letter to the registrant) CSFs were provided and are adequate. Two CSFs are representative of the basic formulation and basic formulation when packaged in the WSP, and the other two are representative of the alternate formulation (different source of the active ingredient) and the alternate formulation when packaged in the WSP. The [redacted] A list of suppliers for [redacted] was provided in a footnote on the CSF. To compensate for the variation in concentration of each source of the active ingredient, the concentration of the [redacted] will be adjusted. This adjustment is reflected on each individual CSF. In MRID 46996301 information regarding this adjustment, and a correction to MRID 46876401 regarding the amount of the source ingredient was provided. Data and information that were previously submitted were also addressed in the MRID. The product will be packaged in F-style high-density polyethylene (HDPE) jugs. Storage stability and corrosion characteristics data are in progress and will be submitted to the Agency upon completion. Other requested physical and chemical properties (flammability, explodability, pH, miscibility and dielectric breakdown voltage) were addressed in the data matrix. The EP does not contain combustible materials, is not potentially explosive, is not dispersible with water, will not be mixed with petroleum solvents, and will not be used around electrical equipment.

Product Performance (MRID 46996302 through 46996311 and cover letter)

All studies provided to support label claims were from publicly available literature.

MRID 46996302

In the study, efficacy of RF-330 Altosid® pellets was determined against different *Aedes* mosquito species in irrigated pasture when applied at 3 lb/acre and 8 lb/acre over a period of 126 days. This study was not completely reviewed because efficacy data for this mosquito species is not required.

MRID 46996303

Altosid® pellets containing 4% (s)-methoprene were assessed for efficacy against *Aedes taeniorhynchus* and *Culex quinquefasciatus* mosquitoes when applied 7 days pre-flood (pre-hatch) at an application rate of 5 lb/acre. This study was not completely reviewed because it cannot be determined based on the available data if the test substance utilized in the study is substantially similar to the product for which registration is pending. The concentration and name of the test substance in the study is different than that of the EP and the product from which bridging is requested.

MRID 46996304

The efficacy of Altosid® pellets containing 4% (s)-methoprene was evaluated against *Aedes taeniorhynchus* in saltwater plots. This study was not completely reviewed because efficacy data for this mosquito species is not required, and it cannot be determined based on the available data if the test substance utilized in the study is substantially similar to the product for which registration is pending. The concentration and name of the test substance in the study is different than that of the EP and the product from which bridging is requested.

MRID 46996305

The effect of methoprene was assessed against Aedes aegypti under laboratory conditions. The test substance was identified as Metoprag 20CE. This study was not completely reviewed because efficacy data for this mosquito species is not required, and it cannot be determined based on the available data if the test substance utilized in the study is substantially similar to the product for which registration is pending.

MRID 46996306

The ability of Altosid® pellets containing 4% (s)-methoprene to control Aedes albopictus mosquito species was evaluated in the study submitted. This study was not completely reviewed because efficacy data for this mosquito species is not required, application rates utilized in the study were greater than label application rates, and it cannot be determined based on the available data if the test substance utilized in the study is substantially similar to the product for

which registration is pending. The concentration and name of the test substance in the study is different than that of the EP and the product from which bridging is requested.

MRID 46996307

The efficacy of a 30-day slow release product, Altosid® pellets containing 4.25% (s)-methoprene was evaluated against *Culex* mosquito species in simulated storm water catch basins. The product was applied one-time at 3.5g per catch basin. The catch basins were roughly one-fourth of the size of an actual catch basin (approx. 48cm wide X 82.5cm long X 57cm deep). Environmental conditions were adequately described. The control experiment was adequately described. A week after application, 100 laboratory-reared 1st instar *Culex pipiens* larvae were added to the simulations. Pupae were transferred into emergence jars and pupal mortality and adult emergence were recorded. After all pupae were removed, 100 more larvae were added. The number of emerging mosquitoes from control basins was compared to the number of mosquitoes emerging from treated basins. Quantitative data were not provided regarding the results of this experiment, only that the dose of methoprene continued to kill mosquitoes for up to approximately 150 days. A similar experiment was conducted in treated and untreated catch basins in the field over two summers. Environmental conditions and the control experiment were adequately described. Mosquito pupae were opportunisticically sampled from the basins. Not enough data were provided in the results discussion to adequately address control of mosquitoes, and some data provided was equivocal. The percentage of emerging mosquitoes from treated basins was provided and compared with that from control basins, but the numbers of insects do not concur with the number observed originally. If the numbers did concur, for the first summer, in three catch basins, the percent of emergence (percent of pupae molting into adults) was 24% 10-20 days post-treatment and 87% two months post-treatment; the control group was 80% and 100%, respectively. In the second summer (smaller sample size) 2% of insects emerged after two weeks, and 11% emerged as adults a month and a half later; control emergence was 93% and unknown (no data were provided), respectively.

MRID 46996308

Altosid® pellets were evaluated against *Coquillettidia perturbans* mosquitoes in wetland sites. This study was not completely reviewed because the percent of the active ingredient in the test substance was not provided in the study.

MRID 46996309

Altosid® pellets, containing 4% (s)-methoprene were evaluated in small field plots at 5 lb/acre against *Culiseta melanura* mosquitoes. This study was not completely reviewed because it cannot be determined based on the available data if the test substance utilized in the study is substantially similar to the product for which registration is pending. The concentration and name of the test substance in the study is different than that of the EP and the product from which bridging is requested.

MRID 46996310

The performance of Altosid® pellets, containing 4% (s)-methoprene and was evaluated against *Culex pipiens* and *Culex retuans* mosquito species, when applied under field conditions in catch basins, at 7g/catch basin. This study was not completely reviewed because it cannot be determined based on the available data if the test substance utilized in the study is substantially similar to the product for which registration is pending. The concentration and name of the test substance in the study is different than that of the EP and the product from which bridging is requested.

MRID 46996311

In the study, effectiveness of Altosid® pellets, containing 4% (s)-methoprene was tested against *Aedes* and *Culex* mosquito species when applied at an application rate of 5 lb/acre up to 5 weeks pre-flood (pre-hatch). This study was not completely reviewed because it cannot be determined based on the available data if the test substance utilized in the study is substantially similar to the product for which registration is pending. The concentration and name of the test substance in the study is different than that of the EP and the product from which bridging is requested.

Non-Targets (MRID 46996312)

Concentrations of (s)-methoprene in freshwater microcosms were determined over time through application and assessment of Altosid® pellets, containing 4% (s)-methoprene at the maximum label rate. The analysis of the active ingredient was conducted using capillary gas chromatography. This study was not completely reviewed because it cannot be determined based on the available data if the test substance utilized in the study is substantially similar to the product for which registration is pending. The concentration and name of the test substance in the study is different than that of the EP and the product from which bridging is requested.

cc: A. L. Gonzales, C. Pfeifer, BPPD Subject File, IHAD/ARS
A. L. Gonzales, FT, PY-S, 03/05/2007